Electronic Version
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Claims

[c1] 1. A method for fabricating a circuit substrate, comprising the steps of:
providing a circuit substrate having a first surface and a second surface, wherein the circuit substrate includes at least a first pad, at least a second pad, a first patterned solder mask layer and a second patterned solder mask layer, the first pad and the second pad are formed respectively on the first surface and on the second surface, the first pad is electrically connected to the second pad, the first patterned solder mask layer is formed on the first surface and has at least an opening exposing the first pad, and the second patterned solder mask layer is formed on the second surface and has at least an opening exposing the second pad;
forming a conductive seed layer over the second surface;
forming a patterned mask layer over the second surface, wherein the patterned mask layer has at least an opening exposing the conductive seed layer positioned over the second pad;
electroplating a first conductive layer and a second conductive layer respectively over the first pad and over the second pad;

eliminating the patterned mask layer; and
patterning the conductive seed layer.

[c2] 2. The method of claim 1, wherein the circuit substrate includes a patterned insulation layer formed on the first surface, the first patterned solder mask layer is formed on a surface of the insulation layer, and the surface of the insulation layer is coplanar with a surface of the first pad.

[c3] 3. The method of claim 1, wherein the circuit substrate includes a patterned insulation layer formed on the second surface, the second patterned solder mask layer is formed on a surface of the insulation layer, and the surface of the insulation layer is coplanar with a surface of the second pad.

[c4] 4. The method of claim 1, wherein the step of patterning the conductive seed layer is provided by etching or polishing.

[c5] 5. A method for fabricating a circuit substrate, comprising the steps of:
providing a circuit substrate having a first surface and a second surface, wherein the circuit substrate includes at least a first pad, at least a second pad, a first patterned solder mask layer and a second patterned solder mask

layer, the first pad and the second pad are formed respectively on the first surface and on the second surface, the first pad is electrically connected to the second pad, the first patterned solder mask layer is formed on the first surface and has at least an opening exposing the first pad, and the second patterned solder mask layer is formed on the second surface and has at least an opening exposing the second pad;

forming a conductive seed layer over the second surface;

electroplating a first conductive layer and a second conductive layer respectively over the first pad and over the conductive seed layer;

forming a patterned mask layer over the second surface, wherein the patterned mask layer covers the second conductive layer positioned over the second pad;

patterning the second conductive layer;

patterning the conductive seed layer; and

eliminating the patterned mask layer.

[c6] 6. The method of claim 5, wherein the circuit substrate includes a patterned insulation layer formed on the first surface, the first patterned solder mask layer is formed on a surface of the insulation layer, and the surface of the insulation layer is coplanar with a surface of the first pad.

[c7] 7. The method of claim 5, wherein the circuit substrate includes a patterned insulation layer formed on the second surface, the second patterned solder mask layer is formed on a surface of the insulation layer, and the surface of the insulation layer is coplanar with a surface of the second pad.

[c8] 8. The method of claim 5, wherein the step of patterning the conductive layer is provided by etching.

[c9] 9. The method of claim 5, wherein the step of patterning the conductive seed layer is provided by etching or polishing.

[c10] 10. A method for fabricating a circuit substrate, comprising the steps of:
providing a circuit substrate having a first surface and a second surface, wherein the circuit substrate includes at least a first pad and at least a second pad, the first pad and the second pad are formed respectively on the first surface and on the second surface, and the first pad is electrically connected to the second pad;
forming a conductive seed layer over the second surface;
forming a first patterned mask layer and a second patterned mask layer respectively over the first surface and over the conductive seed layer, wherein the first patterned mask layer has at least an opening exposing the

first pad, and the second patterned mask layer has at least an opening exposing the conductive seed layer positioned over the second pad;

electroplating a first conductive layer and a second conductive layer respectively over the first pad and over the second pad;

eliminating the first patterned mask layer and the second patterned mask layer; and

patterning the conductive seed layer.

[c11] 11. The method of claim 10 further comprising forming a patterned solder mask layer over the first surface and the patterned solder mask layer has at least an opening exposing the first conductive layer.

[c12] 12. The method of claim 10 further comprising forming a patterned solder mask layer over the second surface and the patterned solder mask layer has at least an opening exposing the second conductive layer.

[c13] 13. The method of claim 10, wherein the circuit substrate includes a patterned insulation layer formed on the first surface, the first patterned solder mask layer is formed on a surface of the insulation layer, and the surface of the insulation layer is coplanar with a surface of the first pad.

[c14] 14. The method of claim 10, wherein the circuit substrate includes a patterned insulation layer formed on the second surface, the second patterned solder mask layer is formed on a surface of the insulation layer, and the surface of the insulation layer is coplanar with a surface of the second pad.

[c15] 15. The method of claim 10, wherein the step of patterning the conductive seed layer is provided by etching or polishing.

[c16] 16. A method for fabricating a circuit substrate, comprising the steps of:
providing a circuit substrate having a first surface and a second surface, wherein the circuit substrate includes at least a first pad and at least a second pad, the first pad and the second pad are formed respectively on the first surface and on the second surface, and the first pad is electrically connected to the second pad;
forming a conductive seed layer over the second surface;
forming a first patterned mask layer over the first surface, wherein the first patterned mask layer has at least an opening exposing the first pad;
electroplating a first conductive layer and a second conductive layer respectively over the first pad and over the conductive seed layer;
forming a second patterned mask layer over the second

conductive layer, wherein the second patterned mask layer covers the second conductive layer positioned over the second pad;

patterning the second conductive layer;

patterning the conductive seed layer; and

eliminating the first patterned mask layer and the second patterned mask layer.

[c17] 17. The method of claim 16 further comprising forming a patterned solder mask layer over the first surface and the patterned solder mask layer has at least an opening exposing the first conductive layer.

[c18] 18. The method of claim 16 further comprising forming a patterned solder mask layer over the second surface and the patterned solder mask layer has at least an opening exposing the second conductive layer.

[c19] 19. The method of claim 16, wherein the circuit substrate includes a patterned insulation layer formed on the first surface, the first patterned solder mask layer is formed on a surface of the insulation layer, and the surface of the insulation layer is coplanar with a surface of the first pad.

[c20] 20. The method of claim 16, wherein the circuit substrate includes a patterned insulation layer formed on

the second surface, the second patterned solder mask layer is formed on a surface of the insulation layer, and the surface of the insulation layer is coplanar with a surface of the second pad.

[c21] 21. The method of claim 16, wherein the step of patterning the conductive seed layer is provided by etching or polishing.

[c22] 22. A method for fabricating a circuit substrate, comprising the steps of:
providing a circuit substrate having a first surface and a second surface, wherein the circuit substrate includes at least a first pad and at least a second pad, the first pad and the second pad are formed respectively on the first surface and on the second surface, and the first pad is electrically connected to the second pad;
forming a conductive seed layer over the second surface;
electroplating a first conductive layer and a second conductive layer respectively over the first pad and over the second pad; and
patterning the conductive seed layer.

[c23] 23. The method of claim 22, wherein the circuit substrate includes a patterned insulation layer formed on the first surface, the first patterned solder mask layer is formed on a surface of the insulation layer, and the sur-

face of the insulation layer is coplanar with a surface of the first pad.

[c24] 24. The method of claim 22, wherein the circuit substrate includes a patterned insulation layer formed on the second surface, the second patterned solder mask layer is formed on a surface of the insulation layer, and the surface of the insulation layer is coplanar with a surface of the second pad.

[c25] 25. The method of claim 22, wherein the step of patterning the conductive seed layer is provided by etching or polishing.